

Amendment under 37 C.F.R. 1.111
U.S. Application No. 10/646,942
Atty Dkt No. GY0310US

REMARKS

Applicants thank the Examiner for acknowledging Applicants' claim to foreign priority under 35 U.S.C. § 119(a)-(d), and for confirming that the certified copy of the priority document has been received at the Patent Office in U.S. application No.: 10/646,942.

Drawings:

Applicants thank the Examiner for indicating that the drawings filed on August 21, 2003 have been approved.

Specification:

Applicants have amended the specification to correct minor informality. Thus, no new matter has been added.

Claim Rejections:

Claims 1-17 are pending in the present application, and currently all of the claims are rejected.

35 U.S.C. § 102(e) Rejection – Claims 1-17:

Claims 1-17 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,585,413 to Keenan et al. In a view of the

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following discussion, Applicants respectfully traverse the above rejection.

1. At first, Applicants of the present application organize the background of the invention disclosed in the specification from Page 4, lines 13 to page 5, lines 5 as follows:

(1) Common aspect between our invention and prior art

A pass/fail judgment device which is used for a discriminant analysis extracts characteristic forms appropriate to pass/fail judgment from a great many characteristic forms, and makes judgment.

(2) Prior technique

After predetermined measured data acquired from a pass/fail judgment device is converted into a large number of pass/fail judgment parameters (parameters which can represent characteristic forms), histograms of these parameters are generated for pass category and for fail category. And a discriminant function which defines a variable Z is computed, and pass/fail judgment is made with whether the variable Z is "0" taken as a threshold.

(3) Problems of the prior art

In terms of performance, pass/fail judgment is required to minimize a rate of flowout and a rate of overcontrol. Rate of flowout is a rate at which defective articles are judged as passed and let out. Rate of overcontrol is a rate at which acceptable articles are judged as failed and contained. In the above-mentioned conventional example, the enhancement of performance in this sense is very difficult.

The pass/fail judgment of the ordinary prior art is made depending on whether the variable Z is greater than 0. In this discriminant analysis, Z=0 is a midpoint between the mean value of pass category and the mean value of fail category. Therefore, in threshold discrimination by Z=0, a threshold is determined regardless of rate of flowout or rate of overcontrol, and it cannot be adjusted in advance so that a desired rate of flowout or rate of overcontrol will be obtained.

To enhance the performance of a conventional pass/fail judgment device, pass/fail judgment must be repeated by a huge number of times each time changing the method for selecting the above parameters to

modify the discriminant function itself.

As disclosed above, the pass/fail judgment is determined according to the value of the variable Z, namely whether the value of the variable Z is greater than 0 or not. But the result of such judgment does not provide a desired rate of flowout or rate of overcontrol, because Z=0 just means the midpoint between the mean value of pass category and the mean value of fail category and is irrelevant of rate of flowout or rate of overcontrol.

2. Further in the specification from page 71 to page 74, the following key point is disclosed to explain the function of step 420 and step 430.

The multivariate statistics analyzer 400 is so designed that a rate of flowout can be inputted through the input unit 420. A threshold is determined based on this rate of flowout. Namely, after a rate of flowout is accepted at Step 430, such a threshold T as to give the rate of flowout is determined at Step 440.

(page 71 lines 12 · page 72 lines 20)

After the threshold T is determined as mentioned above, the laser inspecting instrument 100 acquires threshold data 446g

identifying the threshold T. Thus, pass/fail judgment can be made so that desired rate of flowout and rate of overcontrol will be obtained.

In the above example, pass/fail judgment is made under two categories, pass category and fail category, in processing by the mode classifying portion 460a through the threshold determining portion 460d.

(page 73 lines 21 - page 74 lines 8)

3. Not only the description in the embodiment, the invention in the claim 1 definitely claims the following element, which is

"a threshold determining unit for taking as a threshold for pass/fail judgment the value of said variable which gives a specific distribution probability in either or both of said categories based on said center of distribution and distribution parameters;"

4. Summary

Neither references, nor prior art, do not disclose varying the threshold based on any principle.

On the other hand, in our invention, as mentioned above, the threshold

determining unit take(s) as a threshold for pass/fail judgment the value of said variable which gives a specific distribution probability based on said center of distribution and distribution parameters.

Without any principle which shows a way to set the threshold, to enhance performance of pass/fail judgment, pass/fail judgment must be repeated by a huge number of times each time changing the method for selecting the above parameters to modify the discriminant function itself.

By adopting said technique shown above in our invention, varying the threshold based on said center of distribution and distribution parameters which gives a specific distribution in either or both of said categories makes the performance be enhanced very simply.

5. As mentioned supra, independent claims 1, 11, 12, and 13 contain substantially the same element for determining the threshold, thus should not be rejected in view of the novelty by the reference U.S. Patent No. 6,585,413 to Keenan et al.

Further they not only obtain the novelty, but also obtain inventive step by the superior performance, such as simplifying the way to enhance the

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performance of the pass/fail judgment as mentioned above.

6. Accordingly, Applicants respectfully request the rejection of claims 1, 11, 12 and 13 be withdrawn. Claims 2-10 depend from claim 1, and claims 14-17 depend from claim 13. Applicants submit that these dependent claims are also patentable over the references for being dependent from allowable independent claims. In view of the foregoing, reexamination and reconsideration of the claims of the present application is respectfully requested and an allowance at an early date is solicited.

Respectfully submitted,


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